The Economics of Irreparable Harm in Pharmaceutical Patent Litigation

Rahul Guha, Cornerstone Research
Maria Salgado, Cornerstone Research

TABLE OF CONTENTS

Background ................................................................. 1
Direct Impact of Generic Entry on Branded Drug Company Revenues .................................................. 2
Possible Sources of Irreparable Harm Arising from At-Risk Generic Entry ........................................... 2
  • Reductions in Overall R&D Budgets .................. 2
  • Curtailments in Brand-Specific R&D and Marketing Investments . 3
  • Loss in Share within Therapeutic Category ............ 3
  • Formulary Displacement .................................. 4
  • Lost Goodwill ................................................. 4
  • Other Sources of Irreparable Harm .......... 4
Prior Court Decisions on Preliminary Injunctions and Their Findings with Respect to Irreparable Harm ........ 5
Endnotes .............................................................................. 6

BACKGROUND

The Hatch-Waxman Act greatly simplifies the process of obtaining FDA approval for a generic drug. Under the Act, a generic company need only file an Abbreviated New Drug Application (ANDA) to show that the generic drug is bioequivalent to the compound at issue. With bioequivalence established, the generic company can forgo clinical testing of its drug for safety and efficacy. Instead, the generic maker can refer to the clinical data that the branded drug developer generates. 3

Under the Paragraph IV provision of the Act, a generic company can attempt to launch a generic drug prior to the expiration of the branded drug’s patent(s) either by challenging the validity of an extant patent on a branded drug or claiming non-infringement of the patent. 4 The patent holder then has 45 days to file a patent infringement suit, which prevents the generic from launching for the next 30 months. 5 The 30-month stay holds unless a decision is made in the patent suit or the court orders a different period for the stay. However, if the branded drug company reaches the end of the 30-month stay and the patent infringement suit still is not resolved, the generic company may choose to launch at-risk if it has FDA approval—that is, before the patent suit is resolved. The first filer(s) of a Paragraph IV certification obtains 180 days of exclusivity during which no other company can launch a generic version of the branded drug at issue. 6

The branded drug company may seek a preliminary injunction to prevent the generic from launching at-risk. To obtain this injunctive relief, the branded drug company must establish:
1. A reasonable likelihood of success on the merits of its claims;
2. Irreparable harm if the injunction is not granted;
3. That the balance of hardships is on the branded drug; and
4. That the injunction has a favorable impact on the public interest. 7
When branded drug companies seek preliminary injunctions to prevent at-risk generic entry, the required economic analysis of irreparable harm focuses on whether it is possible to quantify with precision the impact of a particular generic launch (in which case the branded company could be compensated by a monetary award).8

While in the past companies could rely on a demonstration of success on the merits for a presumption of irreparable harm, the Supreme Court’s rulings in eBay v. MercExchange and Winter v. Natural Resources Defense Council challenged the presumption of irreparable harm. Further, these cases changed the standard for injunctive relief from showing a “likelihood” of irreparable harm to showing a “possibility” of irreparable harm. That has made it even more crucial now to fully understand the potential arguments for demonstrating irreparable harm.

DIRECT IMPACT OF GENERIC ENTRY ON BRANDED DRUG COMPANY REVENUES

Studies have found that branded drugs lose a majority of their sales to the generic equivalent upon generic entry—over 75 percent in the first three months and over 80 percent in the first six months.9 Indeed, the generic share of total prescriptions had increased to 74.5 percent by 2009.10 This leads to a loss in revenues for the branded drug company upon generic entry.11

There are many factors that encourage patients to use generic drugs. For example, third party payors (TPPs) such as Medicare Part D, private insurers, and pharmacy benefit managers (PBMs) charge lower copayments for generic as opposed to branded purchases.12 Pharmacists have strong financial incentives to switch patients to the generic because they generally earn higher margins on the sale of generic drugs than on branded versions.13 In most states, this switch may be executed by pharmacists without consulting patients and doctors, unless a doctor has indicated in writing on the prescription that it must be dispensed as written.14 Patients without insurance coverage for the drug—as well as patients that face coinsurance payments for their drug purchases—have incentives to purchase generics because they are typically priced at least 25 percent below the branded version of the drug.15 These savings can be seen in the average pharmaceutical treatment cost for major therapy areas, which falls by an average of 27.5 percent one year after generic entry, and 35.1 percent two years after generic entry.16

Generic drugs that are dispensed by healthcare providers are also encouraged over their branded equivalents. For example, under Medicare Part B, the purchaser’s reimbursement for a specialty drug is fixed at the same amount, regardless of whether a generic or brand is being dispensed. This amount is 106 percent of the volume-weighted average sales price (ASP) for the drug molecule—that is, the branded drug and its generic equivalent. Because these policies reimburse purchasers with the same fixed dollar amount for the branded drug and its generic equivalent,17 purchasers have a strong incentive to choose the cheaper generic. And private health-care plans use similar schemes to provide physicians with incentives to reduce drug purchase costs.18

Of course, the branded drug company could attempt to stem losses in prescriptions by reducing the price of its product.19 However, even if such a move could avert some losses in the number of the branded drug’s prescriptions, cutting prices would most likely reduce revenues. The branded drug company could also attempt to stem losses in prescriptions by launching a brand-authorized generic. Brand-authorized generics, however, allow branded companies to recover only some of the lost revenues, for two reasons. First, the brand-authorized generic captures only part of the generic prescriptions. For example, approximately 16 months after the launch of generic Paxil, the total generic share of prescriptions was approximately 85 percent, of which the authorized generic captured roughly half.20 Second, the price of the brand-authorized generic is lower than the price of the branded drug. In the first year following the launch of generic Paxil, the authorized generic price was higher than the average independent generic price, but after the first year, the prices of the authorized generic and independent generics were approximately 50 percent of brand-name Paxil.21

POSSIBLE SOURCES OF IRREPARABLE HARM ARISING FROM AT-RISK GENERIC ENTRY

Reduced revenues for the branded drug overall are amenable to reasonably precise quantification. However, several forms of harm are difficult to quantify with precision, and courts have considered them irreparable. These potential sources of irreparable harm include:

- Reductions in overall R&D budgets
- Curtailments in brand-specific R&D and marketing investments
- Loss in share within therapeutic category
- Formulary displacement
- Lost goodwill

Reductions in Overall R&D Budgets

The dramatic revenue losses for the branded drug manufacturer typically reduce the company’s R&D budget because these companies tend to fund R&D with internal financing sources, such as cash flow and profits, as opposed to external financing sources, such as equity. As shown by Professor Henry Grabowski of Duke University and the late John Vernon, formerly a professor at Duke University, internal financing sources are important contributors to pharmaceutical firms’ research intensities, which are the ratio of R&D expenditures to sales.22 Professor Vernon has also shown that for every dollar decrease in cash flow, R&D investment decreases by about 22 cents.23
These constraints on R&D funding arise for several reasons, including the lack of collateral for capital used in R&D and the difficulty of monitoring the firm’s behavior due to the uncertain nature of R&D. Borrowers also know more than lenders do about the likelihood that their R&D investments will succeed. This information asymmetry makes external funding more costly or not available at all. As Professor Bronwyn Hall of the University of California, Berkeley, states, “Investors have more difficulty distinguishing good projects from bad when the projects are long-term R&D investments than when they are more short-term or low-risk projects.”

It is difficult to precisely quantify the impact of forgone R&D on a branded drug company and the patients who could have benefited from the research findings. In large part, this quantification issue arises because the drug development process is lengthy, risky, and highly uncertain. In fact, the FDA estimates that no more than five “in 5,000 tested compounds pass… preclinical trials and are proposed for clinical studies.” Moreover, more than three-quarters of all drugs that enter clinical testing ultimately fail to receive marketing approval in the United States. Even for drugs that receive such marketing approval, the process is lengthy. For the average approved drug, the time from the start of clinical testing to marketing approval is over seven years. Consistent with the notion that drug, the time from the start of clinical testing to marketing approval, the process is lengthy. For the average approved drug, the time from the start of clinical testing to marketing approval is over seven years. Consistent with the notion that drug development is a highly uncertain process, a number of drugs that face a significant threat of termination during clinical trials are proposed for clinical studies. Moreover, more than three-quarters of all drugs that enter clinical testing ultimately fail to receive marketing approval in the United States. Even for drugs that receive such marketing approval, the process is lengthy. For the average approved drug, the time from the start of clinical testing to marketing approval is over seven years. Consistent with the notion that drug development is a highly uncertain process, a number of drugs that face a significant threat of termination during clinical trials but instead survive later prove to be blockbusters.

Moreover, it is very difficult to precisely estimate the harm that cancellation of a research project can have on a branded drug company that is in an R&D race. This is because the U.S. patent system provides all rewards associated with an innovation to the first inventor. As a result, a branded drug company that falls behind in an R&D race stands to forgo significant—but highly uncertain—profits if it falls behind rivals in researching a drug that subsequently succeeds.

Curtailments in Brand-Specific R&D and Marketing Investments

Following at-risk generic entry, a branded drug company has a strong incentive not to pursue R&D that is specific to the branded drug at issue. This is because any prescriptions generated by the results of this R&D are likely to be filled by the cheaper generic drug. Because of the generic entrant’s ability to free ride off the branded drug company’s R&D investments, the branded drug company often delays or curtails R&D efforts specific to that drug. In so doing, however, the branded drug company forgoes potentially valuable commercial opportunities associated with the development of new indications for the drug at issue. In addition, a reduction in drug-specific R&D can bring significant and irreparable harm to patients who could have benefitted from the findings of planned trials for additional indications.

Branded companies promote their products to physicians and patients. In so doing, they provide information to physicians and patients regarding the drug benefits, and remind physicians and patients about the drug’s characteristics. Following at-risk entry, the branded drug company has a strong incentive to reduce promotional expenditures for its product due to these same free-riding issues. Any additional prescriptions these promotional efforts generate are likely to be filled by the cheaper generic drug. However, if the branded company has recently obtained FDA approval for use of that drug in a new indication, reduced promotional expenditures can prevent physicians and patients from learning about a potentially helpful new therapeutic alternative. Economic logic indicates that it is difficult to precisely estimate how physicians and patients would have behaved if they had known about the drug’s new indication. Similarly, it is not straightforward to quantify the benefits that patients would receive if their physicians had prescribed the new treatment option. As a result, the losses to the branded drug company and its potential patients should be irreparable.

Loss in Share within Therapeutic Category

Pharmacies are not allowed to substitute between different branded products unless a physician authorizes it. As a result, competition between branded products differs substantially from competition between brands and their generic equivalents. Instead of competing on the prices charged to pharmacies and wholesalers, therapeutic competition involves convincing physicians and patients about the benefits of the drug through promotions. It also involves competing for business from TPPs or their PBMs. Promotions by branded companies provide physicians and patients with information about the drugs’ characteristics.

Branded drugs typically reduce or eliminate promotional expenditures upon experiencing generic entry because generic drugs typically benefit from branded promotions. With branded promotional expenditures declining on an absolute basis, the branded drug can suffer a reduction in its share of voice within its therapeutic category. The lower share of voice can cause a reduction in the prescriptions for the branded drug compared to other drugs in its therapeutic category. Due to this effect, generic entry often causes a decline in the total prescriptions for the brand and generic drug combined. However, measuring the harm that the branded drug suffers due to its diminished share of voice is inherently difficult; it requires calculating sales that the branded drug loses to each rival drug in a market that is evolving over time. Given the lack of precision inherent in such a calculation, these losses may also be irreparable.
Formulary Displacement

Formulary displacement is another potential cause of irreparable harm to branded drug makers whose products are dispensed by pharmacies. Formularies are lists of drugs compiled by TPPs, which establish the copayments for prescription drugs dispensed by pharmacists. Important drivers of the demand for prescription drugs, formularies often have three tiers. Tier 1 is typically reserved for generic drugs, Tier 2 for preferred branded drugs, and Tier 3 for non-preferred branded drugs. In tiered formularies, the higher the tier, the higher the copayment is. Thus, generic drugs usually have the lowest copayments, preferred branded drugs have intermediate copayments, and non-preferred branded drugs have the highest copayments.34

Because of the relatively favorable copayment in Tier 2, branded drug makers seek to maintain this status on formularies. However, when a TPP can provide a generic version of the branded drug at issue on its formulary, the TPP has less reason to maintain the branded version on Tier 2. Aware of TPP incentives, the drug’s branded competitors often intensify their efforts to displace a Tier 2 branded drug when that branded drug faces generic entry. Rival companies’ displacement efforts typically take the form of offering increased rebates and product discounts to relevant TPPs. Of course, TPPs may also unilaterally decide to move the branded drug to a higher tier or off the formulary entirely.35

When a branded drug loses its Tier 2 status, it is highly uncertain whether a subsequent restoration to Tier 2 would happen in the event of generic withdrawal because the economic conditions that prevailed when the branded drug was originally placed on Tier 2 may no longer exist by the time the generic is withdrawn. For example, new or existing competitors could take over the Tier 2 formulary position, complicating any negotiations to restore the branded drug on Tier 2. Economic analysis therefore suggests that the harm arising from formulary displacement should be considered irreparable.36

In the case of physician-administered drugs, if the maker of a generic withdraws the drug from the market, the reimbursement amount continues to be based on the volume-weighted ASP of the brand and the generic, due to the two-quarter lag in reimbursement rates. If, upon generic withdrawal, the price of the branded drug is at its pre-generic launch level, the reimbursement amount will likely not cover the cost of the drug. This will either cause the provider to switch to a therapeutic alternative, or cause the branded company to lower the price of the brand. In this case, the branded company will only be able to raise the drug price in very small, infrequent increments.

Lost Goodwill

Generic entry can also cause the branded drug at issue to suffer a loss in patient goodwill, even if it prevails in its patent infringement suit. This is because patients now have to pay more for the same drug, because the generic is no longer available. These losses in patient goodwill and sales are inherently difficult to quantify, making them another source of irreparable harm arising from generic entry. Although loss of goodwill is more difficult to establish than the sources of irreparable harm previously discussed, it can be important in certain circumstances.

In the case of drugs dispensed by pharmacists, insured patients are likely to face higher copayments once the generic is withdrawn. As a result, when the branded drug’s generic equivalent is no longer available, patients who had been using that generic equivalent may switch to using other generics—rather than the branded drug—in order to maintain low copayments.37

In the case of specialty drugs that physicians administer, there is also a significant prospect of lost payor goodwill. This is because the Medicare Part B reimbursement scheme that often applies to such drugs produces reimbursement prices that are close to generic levels once the generic has been available to consumers for six to nine months. Thus, if the branded specialty drug is priced significantly above the Medicare Part B reimbursement price at the time of generic withdrawal, providers who purchase it receive reimbursements that are substantially less than their actual cost. Not surprisingly, physicians (and branded drug companies) would prefer to avoid this situation, which is referred to as being “under water.”

Because losses in patient goodwill are intangible in nature, and the switching of former patients from the branded drug to generic products is impossible to quantify with precision, both effects may be considered irreparable harm to the branded drug company.

Other Sources of Irreparable Harm

At-risk generic entry can also have other impacts that can irreparably harm the branded drug company, its employees, and associated educational efforts and patient assistance programs. First, reductions in the branded drug company’s R&D budget, as well as the abandonment of planned research related to the patented drug, could spur an exodus of talent from the company. With the branded drug company having fewer products and clinical trials to design and run, many research scientists and clinicians may seek employment at other companies, including competitors, in order to stay active in their specialty areas. As a result, the branded drug company would likely suffer a long-term negative impact. Because that negative impact would be extremely difficult to estimate with precision, economic analysis indicates that it should be irreparable.
The launch of a generic drug could also lead the branded drug company to scale back its manufacturing operations and lay off employees in manufacturing, packaging, marketing, and quality control. For example, Wyeth, which faced unexpected generic competition for both Protonix and Effexor in late 2007 and early 2008, announced 5,000 potential job cuts in January 2008. Similarly, the unexpected launch of a generic version of OxyContin resulted in a loss of more than 1,800 jobs at Purdue Pharma. The negative impact of these layoffs on the branded drug company itself, as well as its employees, may be difficult to quantify with precision and therefore irreparable.

Finally, branded drug companies often budget discretionary funds to educational grants, patient assistance programs, and other activities that could be imperiled by at-risk generic entry. Faced with a significant reduction in its revenues, the branded drug company would have strong incentives to cut these and other discretionary expenditures. Such cuts would have an adverse impact on the branded drug company’s academic partners, as well as indigent or uninsured patients. Again, it can be very difficult to precisely quantify the impact of these cutbacks on affected parties, creating another source of irreparable harm.

### Prior Court Decisions on Preliminary Injunctions and Their Findings with Respect to Irreparable Harm

While in the past some courts have held that there should be a presumption of irreparable harm when the branded drug company plaintiff has established a reasonable likelihood of success on the merits, many also cite the factors discussed above as additional support for the presumption of irreparable harm. The table below reviews accepted arguments for irreparable harm findings in nine recent cases in which the district courts granted preliminary injunctions to branded drug companies. This list is not intended to be exhaustive but merely illustrative of recent court findings in which plaintiffs have prevailed on their claims.

Table 1. Prior Court Decisions on Preliminary Injunctions and Their Findings with Respect to Irreparable Harm

<table>
<thead>
<tr>
<th>Decision Date</th>
<th>Branded Drug</th>
<th>Case Name</th>
<th>Accepted Arguments for Irreparable Harm</th>
</tr>
</thead>
</table>
| 2001          | OxyContin    | Purdue Pharma v. Roxane, Boehringer Ingelheim | - Price Erosion  
- Staff Layoffs  
- Lost Research Opportunities |
| 2003          | Vantin       | Pharmacia & Upjohn v. Ranbaxy       | - Price Erosion  
- Market Erosion  
- Lost Research Opportunities |
| 2005          | Accupril     | Warner-Lambert v. Teva           | - Lost Right to Exclusion  
- Price Erosion  
- Formulary Displacement  
- Lost Goodwill  
- Lost Research Opportunities |
| 2006          | Plavix       | Sanofi v. Apotex                  | - Lost Market Share  
- Lost Goodwill  
- Staff Layoffs  
- Price Erosion  
- Formulary Displacement  
- Lost Research Opportunities |
| 2008          | Biaxin       | Abbott v. Sandoz                  | - Lost Research Opportunities  
- Formulary Displacement  
- Lost Research Opportunities  
- Weakened Relationships with Physicians |
| 2008          | Aricept      | Eisai v. Teva                     | - Lost Research Opportunities  
- Formulary Displacement  
- Lost Research Opportunities  
- Weakened Relationships with Physicians |
| 2009          | Evista       | Eli Lilly v. Teva                 | - Lost Market Share  
- Price Erosion  
- Formulary Displacement  
- Maximum Allowable Cost Pricing |
| 2010          | Skelaxin     | King v. Corepharma                | - Lost Market Share  
- Price Erosion  
- Formulary Displacement  
- Maximum Allowable Cost Pricing |
| 2010          | Oracea       | Research Foundation of State University of New York v. Mylan | - Lost Market Share  
- Price Erosion  
- Lost Research Opportunities  
- Weakened Brand Awareness |
ENDNOTES


2. According to the U.S. Court of Appeals for the Federal Circuit, "The nature of the patent grant [thus] weighs against holding that monetary damages will always suffice to make the patentee whole, for the principal value of a patent is its statutory right to exclude. H.H. Robertson Co. v. United Steel Deck Inc., 820 F.2d 384, 390 (Fed. Cir. 1987). Similarly, in Hybritech Inc. v. Abbott Laboratories, 849 F.2d 1446, 1451 (Fed. Cir. 1987), the court opined, the "patent statute provides injunctive relief to preserve the legal interests of the parties against future infringement which may have market effects never fully compensable in money."

3. Due to the ease and limited expense associated with bioequivalence testing, the costs associated with filing an ANDA are minimal. For example, a 2005 study estimates that it typically costs less than $1 million to perform the processing work to get a generic drug to a point where it can be approved by the FDA. David Reiffen and Michael R. Ward, "Generic Drug Industry Dynamics," Review of Economics and Statistics, 87, no. 1 (2005): 37–49. In contrast, the average U.S. new drug introduction cost over $580 million in 2000, including both pre- and post-approval R&D. Given the fact that R&D costs historically have been observed to grow faster than the rate of inflation, it is reasonable to expect that current expenditures could surpass $1 billion. See, e.g., Joseph A. DiMasi, Ronald W. Hansen, and Henry G. Grabowski, "The Price of Innovation: New Estimates of Drug Development Costs," Journal of Health Economics, 22 (2003): 151–185; Joseph A. DiMasi and Henry G. Grabowski, "The Cost of Biopharmaceutical R&D: Is Biotech Different?" Managerial and Decision Economics, 28 (2007): 469–479.


5. According to the Act, the branded drug company can sue the generic company after 45 days have passed; however, in this situation, the automatic 30-month stay does not apply.


7. See Amazon.com Inc. v. Barnes and Noble.com Inc., 239 F.3d 1343, 1350 (Fed. Cir. 2001). The balance of hardship test focuses on whether the patent holder will lose more from the claimed infringement than an accused infringer will gain. The public interest standard focuses on whether there is some critical public interest that would be injured by the grant of preliminary relief, given the public interest in competition.


10. Ernst R. Berndt and Murray Aitken, “Brand Loyalty, Generic Entry and Price Competition in Pharmaceuticals in the Quarter Century after the 1984 Waxman-Hatch Legislation” (NBER Working Paper No. 16431, Cambridge, MA, October 2010). The generic share started at 18.6 percent in 1984, and rose to 56.4 percent by 2004. The sharp increase from 2004 to 2009 resulted not only from a number of “blockbuster” drugs (such as Pravachol, Zoloft, and Allegra losing patent protection, but also from the implementation of the 2006 Medicare Part D benefit.

11. Although these are not examples of at-risk generic entry, they do illustrate the fact that generic launches cause the pioneer company to lose a significant share of its revenues.


15. See, e.g., Atanu T. Saha et al., “Generic Competition in the U.S. Pharmaceutical Industry,” International Journal of the Economics of Business, 13, no. 1 (February 2006): 15–38. Note that coinsurance requires the insured to assume a percentage of the cost of covered services. In contrast, copayments require the insured to pay a flat fee for covered services, for example, $5 per prescription drug. Unlike coinsurance, it does not vary with the cost of service.


17. ASP is defined by the Act as a “manufacturer’s sales of a drug to all purchasers in the United States in a calendar quarter divided by the total number of units of the drug sold by the manufacturer in that same quarter. The ASP is net of any price concessions such as volume discounts, prompt pay discounts, and cash discounts; free goods contingent on purchase requirements; chargebacks; and rebates other than those obtained through the Medicaid drug rebate program.” See also Daniel R. Levinson, “Monitoring Medicare Part B Drug Prices: A Comparison of Average Sales Price to Average Manufacturer Prices,” Department of Health and Human Services, Office of the Inspector General (April 2006), http://oig.hhs.gov/oei/reports/oei-03-04-00430.pdf, which notes that the Medicare Part B reimbursement methodology took effect in 2005.


19. Here price is defined as net of rebates offered to TPPs.

21. Ibid. However, these two factors may be partially offset by the fact that authorized generic entry may result in a delay in independent generic entry, due to generic drug manufacturers not wanting to compete with other generics.


24. Ibid., 13.


28. For example, Mevacor, a Merck product, suffered a “near-fatal setback” in 1980 when clinical trials were cancelled because of safety issues that arose in animal trials for a similar compound. After its approval in 1987 by the FDA, however, Mevacor had higher sales than any other prescription medicine in the United States in its first 12 months. Mevacor and its successor Zocor are responsible for billions of dollars in revenue for Merck. “Case 10: Merck(A): Mevacor,” University of Michigan case study, http://www-personal.umich.edu/~afuah/cases/case10.html.


31. PBMs have emerged as the main overseers of the prescription drug plans of employers and managed care organizations. PBMs have developed various strategies for controlling prescription drug consumption. These strategies include formularies, three-tier copayment schemes, drug utilization reviews, and rebates from drug manufacturers or suppliers.

32. Because generic drug companies typically do not engage in marketing, this reduction in marketing expenditures will not be offset by additional marketing expenditures from the generic.

33. If new drugs are launched after generic entry, the branded drug may lose prescriptions to these new drugs as well.


35. Some formularies may reserve Tier 2 only for branded drugs that do not have generic equivalents. See, e.g., Letter from Federal Trade Commission Staff to Virginia Delegate Terry G. Kilgore (October 2, 2006), p. 4, fn. 17, http://www.ftc.gov/be/V060018.pdf.

36. Of course, the branded drug company could reduce its price to TPPs in order to mitigate this loss of formulary position; such reductions are typically offered in the form of rebates and discounts. However, the ability of branded drugs to regain price concessions after the withdrawal of the generic is also unknown and highly uncertain. Thus, the price erosion caused by at-risk generic entry could continue after the issuance of an injunction, and the resulting damages may be difficult to ascertain and thus irreparable.

37. Academic research has shown that a consumer perceives a loss or gain based on the difference between the actual price paid and his or her reference price, where the reference price could reflect the last price paid by the consumer or the consumer’s expectation of the product price. Consumers who reap the gain of reduced copayments for a generic could subsequently perceive a loss with the departure of the generic, due to increased copayments. There is a significant academic literature indicating that consumers assign greater weight to a loss (due to price increase) than to a gain of the same magnitude. See, e.g., Daniel D. Kahneman and Amos Tversky, “Prospect Theory: An Analysis of Decision under Risk,” Econometrica, 47, no. 2 (March 1979): 263–92. Hence, the change in copayments discussed above can lead to a loss of goodwill.
